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09/930,764

08/15/2001

Eugene Lee

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01/11/2006

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EXAMINER

HARPER, KEVIN C

ART UNIT

PAPER NUMBER

2666

DATE MAILED: 01/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/930,764

Applicant(s)

LEE ET AL.

Examiner

Kevin C. Harper

Art Unit

2666

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 October 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,9,12-14,16,18 and 19 is/are rejected.
- 7) ☒ Claim(s) 3,5-8,10,11,15,17 and 20-22 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 August 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

***Response to Arguments***

Applicant's arguments filed October 26, 2005 have been fully considered but they are not persuasive.

1. Applicant argued that Hedge does not disclose a bandwidth limiter to identify a maximum allowable bandwidth for an input port. However, the bandwidth of an input port cannot exceed the assigned bandwidth (fig. 6) plus a credit (col. 8, lines 1-5), where the credit cannot exceed the credit threshold (col. 7, lines 36-37 and 55-57). Therefore, the bandwidth of the port is limited to an identifiable maximum bandwidth.
2. Applicant argued that Hedge does not disclose a peak time slot rate value. However, the peak time slot rate value in Hedge is the bandwidth assigned to the port for a cell cycle transmission time (col. 6, lines 33-35 and 57-58; col. 8, line 60). The bandwidth is limited and decremented to zero (col. 8, lines 1-5) which representations the peak time slot rate value. The credit variable is a register for storing the bandwidth allocation (col. 7, line 45), where the bandwidth allocation is the peak time slot rate value.
3. Applicant argued that Hedge does not disclose that the credit counter is decremented when an input port is connected through the backplane to the output port. However, in Hedge the input port transmits to an output port (col. 7, lines 33-37; fig. 1) where the transmissions are limited in bandwidth (col. 8, lines 1-5). The counter is incremented when the input port is not connected through the backplane to the output port (col. 7, lines 50-53; note: the input port does not transmit packets to the output port which causes the increment).
4. Applicant argued that Hedge does not arbitrate during a time slot. However, the arbitration is performed over a time cycle (col. 4, lines 30-34 and 35-37; col. 6, lines 33-35; col.

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8, line 60). This cycle is equivalent to the time slot as defined (specification, page 3, lines 33-34).

5. Applicant argued that Hedge does not disclose sending requests from an input for transferring data to an output. However, the input ports send requests (fig. 9, steps 2-3; note: request and grant) in order to transmit data to output ports (fig. 1; col. 7, lines 33-37). The requests are for connections that are requested, allocated and implemented during a time period (col. 6, lines 32-35, 45-48 and 54-57). In the next cycle the bandwidth is increased (col. 7, lines 50-55). The input ports can exhaust their allocation, but can only request once per cycle (col. 6, lines 33-39 and lines 58-59).

6. Applicant argued that Grow does not disclose a set of data rate controllers associated with the VOQs. However, the weighted priority scheduling provides bandwidth control (para. 48, last ten lines), where the relative bandwidth of the ports of the switch is of concern (para. 50, last four lines; Table 1; para. 47, lines 6; note: priority and fairness).

### *Drawings*

7. Figures 1 and 11 are objected to because item 12 is an unlabeled rectangular box and should be labeled with descriptive text, such as “network processing device” (37 CFR 1.83(a); MPEP 6.08.02(b), Form Paragraph 6.22, Examiner Note #1). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from

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the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 102***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-2, 4, 9, 12-14 and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Hegde et al. (US 6,810,031).

8. Regarding claim 1, Hedge discloses a data rate controller (fig. 2, item 108; fig. 3, item 108; col. 6, lines 51-57) for controlling a rate that data is transferred over a backplane (fig. 1, item 110 in a network processing device (fig. 1). The data rate controller comprises a bandwidth allocator to allocate bandwidth to an input port (col. 7, lines 1-3, 43-47 and 66-67), a bandwidth limiter to identify a maximum allowable bandwidth for an input port (col. 7, lines 48-55), and a bandwidth tracker to identify an allocated bandwidth and to prevent the input port from connecting to the output port when the bandwidth is used up (col. 7, line 66 through col. 8, line 5).

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9. Regarding claim 2, the bandwidth allocator comprises a register (col. 7, line 48-49; note: counter) that stores a programmable peak time slot rate value (col. 7, lines 66 through col. 8, line 5; col. 6, lines 33-35 and 54-58).

10. Regarding claim 4, the counter increments when data is not sent and decrements when data is sent (col. 7, lines 50-55 and 62-65; col. 8, lines 3-5).

11. Regarding claim 9, the data rate controller includes an arbitration circuit (fig. 2, item 108; fig. 3, item 108) to arbitrate between input ports based on priority and weight of the packets (col. 6, lines 47-53; col. 12, lines 54-60; fig. 7; note: weight is assigned bandwidth; col. 13, lines 11-16) during a next time slot (col. 6, lines 33-35).

12. Regarding claims 12-14, Hedge discloses a method for controlling a rate that data is transferred over a backplane (col. 6, lines 51-57; fig. 1, item 110) in a network processing device (fig. 1). The method comprises allocating bandwidth to an input port (col. 7, lines 1-3, 43-47 and 66-67), sending requests from the input port during a next time slot (fig. 9, step 2), increasing bandwidth allocation for ports that are not connected for the next time slot and decreasing bandwidth allocated for ports that are connected for the next time slot (col. 7, lines 50-55 and 62-65; col. 8, lines 3-5), and preventing input ports from sending requests when the allocated bandwidth has been exhausted (col. 8, lines 15-19; col. 9, lines 19-26; col. 12, lines 30-32).

13. Regarding claim 16, bandwidth is identified for an output port for transferring data to a network (fig. 11, "Available BW>0?" and "Total REQ > Avail BW") and preventing the output ports that have used up the bandwidth from granting connections to the input ports (fig. 11, "Grant [n]=0").

Claims 18-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Grow (US 2004/0081185).

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14. Regarding claims 18-19, Grow discloses a network processing device (fig. 1) comprising multiple input ports (items 2) for receiving incoming packets (para. 16), multiple output ports (items 4) for outputting packets, a switch fabric (item 6), multiple virtual output queues (fig. 3, item 12) associated with the input ports, and a set of data rate controllers and scheduler (fig. 3, item 16; note: one selector for each input RAM - fig. 2, items 2) virtual output queue for controlling a data rate that the input ports can transfer data to the output ports over the switch fabric (para. 48, lines 6-12; note: weighted priority scheduling).

#### ***Allowable Subject Matter***

15. Claims 3, 5-8, 10-11, 15, 17 and 20-22 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,


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however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Harper whose telephone number is 571-272-3166. The examiner can normally be reached weekdays from 11:00 AM to 7:00 PM ET.

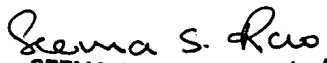
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema S. Rao, can be reached at 571-272-3174. The centralized fax number for the Patent Office is 571-273-8300. For non-official communications, the examiner's personal fax number is 571-273-3166 and the examiner's e-mail address is kevin.harper@uspto.gov.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications associated with a customer number is available through Private PAIR only. For more information about the PAIR system, see portal.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Kevin C. Harper

January 9, 2006

  
SEEMA S. RAO 1/9/06  
SUPERVISORY PATENT EXAMINER  
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